TWO WAY LCD AUTOMATIC
TRANSMISSION REMOTE STARTER

Installation Guide

W A R N I N G !

This is a generic installation guide and it is designed for the specific model number stated above. Furthermore, for clarity purposes, the **START/STOP** button, associated with 4-button models, will be referred to as either **START** or **STOP** depending on the functionality being described.

Notice

The manufacturer will accept no responsibility for any electrical damage resulting from improper installation of the product, be that either damage to the vehicle itself or to the Unit. This Unit must be installed by a certified technician using all safety devices supplied. Please note that this guide has been written for properly trained Autostart technicians: a certain level of skills and knowledge is therefore assumed. Please review the Installation Guide carefully before beginning any work.

Warning

This module is designed for vehicles with an **automatic** Transmission only. Before installing the Unit, test that the vehicle does not start when the Gear Select Lever is in the "Drive" position. If it starts in gear, install a manual-transmission remote starter system instead.

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Introduction

This guide contains all the information relevant and necessary for the installation of the module. Most of the features of this product are explained in the user guide. Therefore, if you need detailed information about a feature of the product, we recommend that you refer to the user guide.

Included in the Kit

Please carefully read the installation guide before beginning the installation, especially the harness description section and the programming options.

It is very important that you familiarize yourself with the programming and the operation of the module, even if you have already installed a similar module in the past. There are many innovative features that you may overlook if you do not read this guide.

Prior to the installation, make sure that all the hardware components required to install the system are in the box.

The following is a list of components included in the kit:

- 1 – remote starter control unit
- 1 – FM long-range transceiver
- 1 – antenna interconnect cable
- 1 – multi-channel 5-button remote control
- 1 – six-pin 14 AWG harness (Ignition Harness)
- 1 – five-pin 18 AWG harness (Main Harness)
- 1 – twelve-pin 22 AWG harness (Accessories Harness)
- 1 – two-pin 22 AWG harness (Accessories Harness)
- 1 – parts bag: a hood pin-switch, a connector and a warning label
- 1 – user guide

The plug-in valet button is not included.

INDUSTRY CANADA USER NOTICE:
Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.
To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.
FCC USER NOTICE (U.S.A.):
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

Installation Points to Remember

- Make sure that vehicles equipped with an automatic transmission do not start while in any of the drive gears. **If the vehicle starts in gear, install a manual-transmission remote starter instead.**
- When installing a manual-transmission product on a vehicle with a manual transmission, always make sure that all doors will get the unit out of ready mode. switch the wire used so that it is triggered by all doors.
- When installing a manual-transmission product on a vehicle with a manual transmission, make sure that the parking brake and door switch contacts work properly.
- When working on a vehicle, always leave a window open.
- **Never** leave the keys in the car. Leave them on a workbench with a window rolled down.
- If possible, remove courtesy light fuse to prevent battery drain.
- The **PROGRAMMING ASSISTANCE BUTTON (PAB)** The PAB is mounted on the side of the module unit and fulfils the same function as the hood-pin switch. The PAB will spare installers the effort of getting out of the vehicle to access the hood-pin switch. **The PAB works only when the hood is up.**
- Inspect vehicle for any body damage or electrical problems
- **Always solder and tape all connections.**
- Keep the antenna away from other types of antennas (GPS/OnStar).
- Never install the control unit where it could interfere with normal operation or obstruct service technicians.
- Always use a grommet when running wires into the engine compartment. Never run wires through bare or sharp metal.
- Do not disconnect the battery on vehicles equipped with air bags and anti-theft radios.
- Never ground the control unit to the vehicle's steering column.
- Make sure that all the switches and controls operate properly.
- Verify that the vehicle starts and idles properly.
- Make sure that all safety equipment is installed: the valet button (if provided), the hood switch and the warning label.
- When wiring in parallel, make sure you isolate each connection with a diode in order to avoid feedback and possible damage.
  Examples:

Wiring a clutch bypass and a transponder module to the GROUND OUT WHEN RUNNING wire: At the junction point, where the **GROUND OUT WHEN RUNNING** wire "splits" and connects to each device, a diode is inserted on each of these lines.

Multiple or separate door pin connections:

When joining all door pins together to the door pin input wire of the module unit, each wire must be isolated with a diode to prevent feedback.

Note: The above examples reflect common situations where diodes are use to isolate connections. Please note that there are numerous other cases where diode isolation is required.

- Always make sure that all external relays or modules added to the module unit are properly fused and diode isolated.
- On vehicles equipped with daytime running lights, the installer may be unable to see certain programming results since the daytime running lights never go out.

  Note: The parking light output relay of the unit gives two clicking sounds for each flash of the lights: one click when the lights would go **ON** and one click when the lights would go **OFF**.)
- **Parking light flashes** to which the text refers throughout this manual refer to the parking light output of the **unit**, not of the **vehicle**.

Harness Description

When connecting a module, it is important to make sure that the connector with the ground wire is connected first, before making the 12-volt connections. Should the unit be powered up before being grounded, there could be serious damage to internal components of the unit.

Be careful not to power up a module before it is properly grounded. To avoid any accident, it is recommended to pull out the fuses from their sockets before the installation, and to put them back during the very last steps.

6-Pin Main Ignition Harness

Wire	Colour	Function	Description
A	RED	(+) 12 V Battery	Connect to the largest 12 V supply wire at the ignition harness. Ensure that the OEM power wire is fused for more than 30 A.
			Please note: some of the most recent vehicles have no suitable 12 V source at the ignition switch (the 12 V wire is too small to supply the necessary current). In such cases, it is recommended to use the fuse box or the B+ connection on the battery.
B	PURPLE	(+) Starter output (30 A)	Connect to the starter wire of the vehicle. The source wire should have +12 V with the ignition key in the **CRANK** position only.
C	RED	(+) 12 V Battery	Connect to the largest 12 V supply wire at the ignition harness. Ensure that the OEM power wire is fused for more than 30 A.
			Please note: some of the most recent vehicles have no suitable 12 V source at the ignition switch (the 12 V wire is too small to supply the necessary current). In such cases, it is recommended to use the fuse box or the B+ connection on the battery.
D	YELLOW	(+) Ignition output (30 A)	Connect to the Ignition wire of the vehicle. The source wire should have +12 V with the ignition key in the **IGNITION ON (RUN)** and **CRANK** positions.
			Warning: at the ignition switch of certain vehicles, there may be more than one ignition wire. Use the 5th relay (Pin F) and extra relays to power up any extra ignition wires if necessary. **Do not jump wires at the Ignition Switch**: this would compromise the OEM electrical system.

E	**ORANGE**	**(+) Accessories output (30 A)**	**This wire will power the heater blower motor.** Usually connected to the accessories wire of the vehicle. The source wire must have power with the ignition key in the **IGNITION ON (RUN)** position only (**no** power in the **CRANK** position).
			Warning: at the ignition switch of certain vehicles, there may be more than one ignition wire for powering the heater blower motor. Use the 5th relay (Pin F) and extra relays to power up any extra ignition wires if necessary. **Do not jump wires at the ignition switch**: this would compromise the OEM electrical system.
F	**GREEN**	**(+) Fifth Relay output (30 A)**	This high-current output can be used to power a second ignition, accessories or crank wire. See **jumper setting** on page 16, for correct output.
			Please note: additional ignition, accessories, or starter wires must use external relays. **Do not jump wires** at the ignition switch: this would compromise the OEM electrical system.

5-Pin Secondary Harness

Wire	Colour	Function	Description
1	**BLACK**	**(–) Chassis ground input**	This wire must be connected to bare, unpainted metal (the chassis or the true body ground). It is preferable to use a factory ground bolt rather than a self-tapping screw. **Screws tend to get loose or rusted over time and can cause erratic problems.**
2	**PURPLE**	**(A.C.) Tachometer input**	This wire will allow the module to sense whether the engine is running. The wire requires at least 1.8 V (AC) and 1.6 Hz or faster when the engine runs at idle speed. Common references for the tach wire are: the negative side of the ignition coil, the camshaft sensor, the crankshaft sensor or the engine control module (ECM).
			Note: if the tach signal is too low, the module will "over-crank". Conversely, if the tach signal is too high, the module will "under-crank".
3	**GREY**	**(–) Hood switch input**	Connect this wire to the installed hood pin switch supplied. This input will disable or shut down the remote starter when the hood is up.
4	**ORANGE**	**(+) Brake Switch input**	This wire must be connected to the brake light wire of the vehicle. This wire must have +12 V only when the brake pedal is down. This input will shut down the remote starter if the brake pedal is pressed.
5	**YELLOW**	**(+) 12 V Parking Light output**	This wire provides a +12 V output and must be connected on the vehicle to the parking lights wire that tests +12 V when the light switch is in the **ON** position.
			Note: ensure that the voltage does not decrease or increase when the dimmer control switch is turned. If the voltage goes up or down, find another parking light wire.

12-Pin Accessories Harness

Wire	Colour	Function	Description
1	BLUE	(–) Trunk / AUX 3 output	500 mA negative output. This output can be used to control the trunk release (1-sec. pulse), or it can be set to operate as a constant output as long as the **TRUNK** button is held pressed (for sunroof or window closure)
2	BROWN	(–) Lock output	Programmable 500 mA negative output: 1/10-sec., 7/10-sec. or 4-sec. pulse
3	GREEN	(–) Unlock output	Programmable 500 mA negative output: 1/10-sec., 7/10-sec., 4-sec. or double 1/4-sec. pulse (**ON** 250 ms, **OFF** 500 ms, **ON** 250 ms).
4	WHITE / BROWN	(–) Rearm output	500 mA ground signal when the doors are locked by remote control. This wire will go to ground 1/2 sec. before the **LOCK** pulse, and go out 1/8 sec after **LOCK**. The wire must be connected to the OEM arm wire (usually the door pin). **Note:** The module will also give a rearm pulse on this wire when it shuts down the vehicle after a remote start.
5	WHITE / GREEN	(–) Disarm output	500 mA ground pulse when the doors are unlocked by remote control. Connect to the OEM disarm wire of the vehicle. **Note:** The system will also give a disarm pulse on this wire before every remote start.
6	BLUE / WHITE	(–) AUX 1 output	Depending on the configuration of Mode 3, Function 4 (see **programming options**), this output will provide either a 500 mA ground output on the 2nd consecutive press of the **UNLOCK** button to unlock all doors, or a horn confirmation on the first or second press of the **LOCK** button.
7	WHITE / ORANGE	(–) Starter kill output (armed output)	This wire will provide a constant 500 mA output when the system is armed (locked by remote control). It can be connected to an external starter interrupt relay. This wire should be connected to a single pole double-throw relay: this wire will connect to pin 85 on the relay, and pin 86 will be connected to the ignition wire. The starter kill output becomes active during remote starts. One benefit of the starter kill is the anti-grind feature. Once the vehicle has been remote started, the anti-grind prevents the starter motor from re-engaging when the ignition key is inserted in the ignition switch and accidentally turned to the **CRANK** position.
8	ORANGE	(–) AUX 2 output	This negative 500 mA output can be programmed for one of the following options: 1. Constant while the **FUNCTION** and **LOCK** buttons are pressed + 1 sec after release of the buttons. 2. **FUNCTION** + **LOCK** toggles **ON / OFF** (max. 30 sec.). 3. **FUNCTION**+ **LOCK** toggles **ON / OFF** (max. 4 minutes → *Only when running under a remote start*). 4. Priority door access (2nd press of **UNLOCK** to unlock all other doors). Refer to Priority Door section on page 17 for more detail.

9	**PURPLE**	**(–) External Trigger**	The external trigger wire can be used for remote-starting the vehicle with an external device. When the vehicle is running, triggering this input will activate idle mode. The external trigger wire can also be used to operate as a negative trigger with the trunk pin-switch, the key sense wire or the door pin-switch: **Option 1** Connects to negative trunk pin. When this wire is programmed for trunk pin, pressing **TRUNK** will activate a 1-second disarm output. If ground (-) is detected on the **TRUNK** pin (the trunk has been opened), an arm pulse will be sent 5 seconds after the trunk is closes. An arm pulse will be sent 4 seconds after the **TRUNK** button is pressed if the trunk pin state is unchanged (The trunk was unopened). Disarm is sent only if the system was previously locked and armed. If secure lock is enabled, unlock pulse(s) will be sent with disarm, a **LOCK** pulse and a rearm pulse will be sent when the Trunk is closed or if the Trunk was left closed. **Option 2** (Default: engine start/stop): The first ground (-) pulse on this input will start the engine, the second ground (-) pulse on this input will stop the engine. **Option 3** (Key Sense (-) Input): Connects to OEM key sense wire. When the key is detected in the ignition switch (ground (-) signal on the OEM key sense wire) the starter kill will not arm even when it is set to passive mode. If secure lock is programmed, lock and arm will not be activated while the key sense input is active ("active" meaning there is a key in the ignition barrel). **Option 4** (Smart ignition re-lock): Connects to the negative door trigger input. When the ignition lock option or the lock only option is enabled, after the brake pedal is pressed and after a door has been opened and closed, the doors will **RE-LOCK**.
10	**WHITE**	**(–) Ground Out When Running**	This wire provides a constant 500 mA ground output while the module is running. This output becomes active at the same time as the ignition and shuts off when the module shuts down, e.g.: when the run time has expired, when the **START/STOP** button has been pressed, etc. This output can be used to activate external relays, bypass kits, etc. **Caution!** If multiple relays or modules are connected to the ground- out-when-running wire, make sure they are diode isolated from one another: feedback may otherwise occur, causing damage to the vehicle.
11	**GREY**	**(–) N/A**	This pin is not used. Leave it empty.

12	**YELLOW**	**(+) Glow-Plug input**	In diesel mode, this positive input will monitor the glow plug light: it will wait for up to 30 seconds until the glow-plug light goes out before allowing the module to proceed to cranking the engine. Connect to the side of the glow-plug light which is positive when the light is on. **Note:** the module will nevertheless proceed to cranking the engine if the glow-plug light is still on after the 30-sec. delay (25 sec. when the run time is set to 30 min.). **A Note on the Diesel Glow-plug Indicator Light:** (Also known as the "wait-to-start light".) The purpose of the glow-plug circuit on diesel vehicles is to pre-heat the combustion chamber before the vehicle is started. When a remote starter is installed on a diesel vehicle, the glow-plug section of the ignition circuit must be activated and allowed to operate before the vehicle is remote-started. For that purpose, the glow-plug input wire of the module must be connected to the glow-plug indicator light of the vehicle. **Caution!** The module will **only** accept **positive** glow-plug input signals, therefore negative glow plugs should only be connected using relays to invert the polarity. A diode must be added between the negative glow-plug trigger on the relay and the negative glow-plug wire of the car. This is to prevent feedback effects on the glow-plug indicator light on the instrument cluster: the light on the dash would come on because of the feedback, even though the circuit is off. When the user remote-starts the vehicle: • The module will power up the Ignition circuit and wait to engage the starter motor while the glow-plug indicator light is still on. • The module will engage the starter motor as soon as the glow-plug light (+) goes out. Minimum waiting time is 5 seconds. Maximum waiting time is 30 seconds. If no glow-plug wire is found on the vehicle, the glow-plug input on the module may be "timed out". The module will power up the ignition and glow-plug circuits and simply wait for the time-out before starting: • Connecting the glow-plug input wire of the module **to ignition** will hold the ignition **ON** for the maximum waiting time (15 sec., recommended). • Keeping the glow-plug input wire of the module **unconnected** will hold the ignition **ON** for the minimum waiting time (5 sec., not recommended in very cold environments). Connect the glow-plug wire to the ignition wire only after the tach programming has been completed: connecting the glow-plug wire is one of the very last steps in the installation process.

2-Pin Harness

Wire	Colour	Function	Description
1	BLUE/ WHITE	(–) N/A	This pin is not used. Leave it empty.
2	YELLOW	(–) Parking Light output	500 mA negative parking light output **Note:** Ensure that the voltage does not vary when the dimmer control switch is turned up or down. If this is the case, it is not the right wire. **There is a also a positive parking light output. Only one of these two different outputs needs to be connected.**

Flashing the Hood Pin Switch

Flashing the hood pin switch is a procedure that brings the module into programming mode. Once the module is in programming mode, the installer will have up to 20 seconds to select one of the sub-menus. If the installer fails to select a sub-menu before the 20-second delay, the module will exit programming mode and the installer will have to flash the hood pin switch once more.

Tip As long as the hood is up, you may use the programming assistance button instead of the hood pin switch.

Here are the steps which the installer must follow in order to **flash the hood pin switch**:

The Installer …	The Module …
1. Press and hold the hood pin switch for 4 seconds. 2. Release the hood pin switch. 3. While the parking lights are **ON**, press down the hood pin switch once more. 4. Release the hood pin switch again. **Caution!** If you press down and release the hood pin switch too many times, you will enter diagnostic mode rather than programming mode. 5. You now have 20 seconds to select one of the sub-menus.	The parking lights will turn **ON**. The parking lights will stay **ON** for 20 seconds

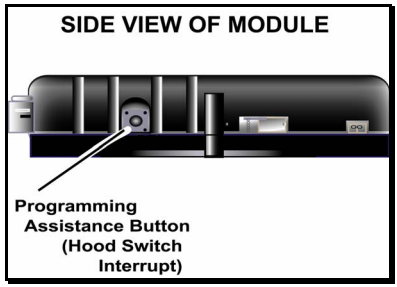
Flashing the Hood Pin switch

Once the module has entered programming mode, you will have a selection of many different sub-menus, which will be described later in this guide:

a. Transmitter Programming p.10
b. Horn Timing (if available) p.14
c. Tach Programming p.13

Note: Once the parking lights are ON (solid), you have up to 20 seconds to select a sub-menu. If you do not select a sub-menu within 20 seconds, the module will exit programming mode and you will have to flash the hood pin switch once again.

The Programming Assistance Button



(A.k.a. the **PAB**.) Mounted on the module, this button can be used from within the vehicle instead of the hood pin switch in the engine compartment. This will spare the installer the trouble of accessing the hood pin switch in the engine compartment.

Caution: The hood pin switch must be installed and connected in order for the programming assistance button to function. **The button will work only when the hood is up.**

Programming the Transmitter

Before you proceed

The transmitter of the module is not delivered pre-programmed: it must be programmed after the wiring of the module is completed. The module has the ability to retain up to 4 different transmitter codes; if a fifth transmitter is programmed, the code of the first transmitter will be lost from memory. **To erase all transmitter codes from memory, you must perform a reset of the module** (see **Resetting the Module** on page 17, for more details).

The Transmitter Programming Procedure

1. **Flash the hood pin switch (see page 9)**
   – The parking lights will stay **ON** for up to 20 seconds.
   – Before the lights go out, turn the ignition key to the **IGNITION ON (RUN)** position.
   – Immediately turn the ignition key back to the **OFF** position.
2. Press and hold the **LOCK** button **until the parking lights flash 5 times quickly.**
   – The module has stored the code of the transmitter into memory.
3. To exit: close the hood.

Programming a Transmitter

To program a transmitter on the second vehicle for multi-car operation, you must press the **TRUNK** button (instead of **LOCK** or **UNLOCK**) in step 2 of the transmitter programming procedure:

Entering Programming Options Mode

The module is equipped with four custom programming modes that allow the installer to custom-fit the system outputs according to installation requirements. The programming options are designed to facilitate interfacing with all vehicle types. To enter the programming center, follow either procedure (Table 1 or Table 2); please note that the second procedure requires the use of the plug-in valet:

1. **Flash the hood pin switch (see page 9)**
– The parking lights will stay **ON** for up to 20 seconds.
– Before the lights go out:
2. Press and hold the brake pedal,
   – And press one of the following buttons on the transmitter:
   - **LOCK** to access mode 1;
   - **UNLOCK** to access mode 2;
   - **TRUNK** to access mode 3;
   - **START/STOP** to access mode 4.

   The **parking lights** will **flash** and the horn will **honk** once (if configured), twice three times or four times to confirm entry into a mode.
3. Release the brake pedal.
4. To exit programming centre, simply close the hood.

Table 1

To get into the programming centre

Note: The unit will stay in the selected programming mode until the hood pin-switch or the brake pedal is pressed again. **Therefore take your time to make the proper selection.** Pressing the brake pedal will take you back to the programming centre, where you can select a different mode.

1. With the key inserted in the ignition switch, turn the key from the OFF position to the ON position and then back to the OFF position.
2. Press and hold the valet switch for three (3) seconds.
3. The LED will turn ON solid.
4. Press and hold the brake pedal,
   – And press one of the following buttons on the transmitter:
   - **LOCK** to access mode 1;
   - **UNLOCK** to access mode 2;
   - **TRUNK** to access mode 3;
   - **START/STOP** to access mode 4.

The parking lights will flash and the horn will honk once, twice, three or four times to confirm entry into a mode (if the horn is configured).
5. Release the brake pedal.
6. To exit the programming centre, press and hold the brake pedal for three (3) seconds.

Table 2

To get into the programming centre

Once you access a particular programming mode, you will automatically start at function 1. Once you select one of the options of function 1, you will automatically be taken to the next function.
To select one of the five options of any given function, press the corresponding button on the transmitter:

- **LOCK** button .....to access option 1
- **UNLOCK** button .....to access option 2
- **TRUNK** button .....to access option 3
- **START** button .....to access option 4
- **FUNCTION** then **LOCK** buttons .....to access option 5

Accessing options

In each function, once an option has been selected the parking lights will flash 1, 2, 3, 4 or 5 times (depending on the selected option).

Please note that the different functions within any particular mode can only be accessed sequentially: the programming centre will move from function 1 to function 2, then to function 3, and so on. Therefore, whenever you access a particular mode, be prepared to re-configure all the functions of that mode in ascending order.

Multi-Level Features *(default state)*

Basic Features (*press the* **FUNCTION** button *1X)*

FUNCTION ➢ **LOCK:** ..... AUX 2
FUNCTION ➢ **START/STOP** ..... cold weather

Multi-Car Operation (*press the* **FUNCTION** button *2X)*

FUNCTION ➢ **FUNCTION** ➢ **LOCK:** ..... 2nd car lock
FUNCTION ➢ **FUNCTION** ➢ **UNLOCK:** ..... 2nd car unlock
FUNCTION ➢ **FUNCTION** ➢ **START/STOP:** ..... 2nd car start/stop

Customized Features (*press the* **FUNCTION** button *3X)*

(*May not be applicable for certain vehicles*)
Your installer can add customized features such as turning on the radio, opening sliding doors, etc.

FUNCTION ➢ **FUNCTION** ➢ **FUNCTION** ➢ **LOCK: .....** customized feature 1
FUNCTION ➢ **FUNCTION** ➢ **FUNCTION** ➢ **UNLOCK: .....** customized feature 2
FUNCTION ➢ **FUNCTION** ➢ **FUNCTION** ➢ **START/STOP:** ..... customized feature 4

By default, the multi-level features are programmed as follows:

- Level 1 (Basic Features)
- Level 2 (Multi car operation)
- Level 3 (Customized Features)

- To access a feature that is programmed as level 1, press the **FUNCTION** button once followed by the desired function.
- To access a feature that is programmed as level 2, press the **FUNCTION** button twice followed by the desired function.
- To access a feature that is programmed as level 3, press the **FUNCTION** button three times followed by the desired function.

Your installer can customize the system as to personalize these multi-level features in an order that best suits you.
Your options are:

Option 1:		
Level 1 (requires pressing the **FUNCTION** button 1X)	→	Multi car operation
Level 2 (requires pressing the **FUNCTION** button 2X)	→	Basic features
Level 3 (requires pressing the **FUNCTION** button 3X)	→	Customized features
Option 2:		
Level 1 (requires pressing the **FUNCTION** button 1X)	→	Basic features
Level 2 (requires pressing the **FUNCTION** button 2X)	→	Multi car operation
Level 3 (requires pressing the **FUNCTION** button 3X)	→	Customized features
Option 3:		
Level 1 (requires pressing the **FUNCTION** button 1X)	→	Customized features
Level 2 (requires pressing the **FUNCTION** button 2X)	→	Multi car operation
Level 3 (requires pressing the **FUNCTION** button 3X)	→	Basic features
Option 4:		
Level 1 (requires pressing the **FUNCTION** button 1X)	→	Basic features
Level 2 (requires pressing the **FUNCTION** button 2X)	→	Customized features
Level 3 (requires pressing the **FUNCTION** button 3X)	→	Multi car operation

Example: If the multi-level features were set to option 3, the setup would be as follows:

- Level 1 → Customized feature
- Level 2 → Multi car operation
- Level 3 → Basic features

The **"Basic features"** are now programmed as level 3 and therefore:

- To access the aux. 2 feature, the user needs to press on the **FUNCTION** button three (3) times followed by the **LOCK** button.
- To access cold weather mode, the user needs to press on the **FUNCTION** button three (3) times followed by the **START/STOP** button.

Tach Programming

About Tach Programming

If you press the **START** button before carrying out a tach programming procedure, the module will make no attempt to start the engine and the parking lights will give 5 flashes.
In order to carry out tach programming, you may simply follow the automatic tach programming procedure.
The module stores tach settings regardless of the procedure used at the time of tach programming. All tach settings are cleared when the module is reset. A new tach programming procedure has to be carried out **only** if the module is reset.

Multi-speed Tach Programming

Tach signals may vary from vehicle to vehicle. The module is designed to read a wide range of tach signals produced by recent ignition systems. There is no necessary manual adjustment. Nevertheless, a tach-programming procedure **must** be carried out **every time a new module unit is installed**. This is because the tach signals of certain ignition systems
are sometimes too low or too high for the module, causing failed start-ups at various temperatures.

1. **Flash the hood pin switch (see page 9)**
2. Press and hold the brake pedal,
   – And simultaneously press the **LOCK** and **UNLOCK** buttons on the transmitter:
   – The parking lights will flash 4 times.
3. **Start up the Engine** and allow the vehicle to reach regular engine idle speed.
4. Once the engine is running idle, press the brake pedal and keep it down until you see the parking lights output flash 5 times (If the horn is configured, you will hear 1, 2 or 3 honks).
   – Release the brake pedal: tach programming is now complete.

Multi-speed tach programming

Note: The L.E.D. follows the parking lights during the transmitter programming procedure. At any time, close the hood to end the tach-programming procedure.

Automatic Tach Programming

This simple procedure can replace the multi-speed tach programming procedure:

1. Make sure that all the connections are properly made and that the module is powered up.
2. With the hood up (ground on the hood pin switch line), start the vehicle using the key.
3. Allow the vehicle to reach regular engine idle speed.
   The parking light output from the module will activate when the vehicle starts and shut off once a tach signal is detected.

4. Press the brake pedal and keep it down until you see the parking lights flash 5 times (If the horn is configured, you will hear 1, 2 or 3 honks).
5. Shut down the engine. Tach programming is now complete.

Automatic tach programming

Tach Adjustments

After having programmed the tach you might need to adjust it (increase or decrease the idle speed). In order to do so, you will need to follow these steps:

1- Flash the hood pin (see page 9)
2- Enter the programming centre (see page 10).
3- Press **and hold** the brake pedal
4- Press simultaneously the **LOCK** and **UNLOCK** buttons.
5- With the brake pedal still pressed,
   a. Press **UNLOCK** to decrease the idle speed, or,
   b. Press **LOCK** to increase the idle speed.
6- Once you have obtained the desired idle speed, press **TRUNK** to save the new settings. The parking lights will flash five times. If the horn has been configured you will hear one honk if the last button pressed was **LOCK** and two honks if the last button pressed was **UNLOCK**.
7- Release the brake pedal and close the hood.
8- The adjustment is done.

Adjusting the tach

Horn Timing

Follow these steps to program horn confirmation:

1. Ensure that the hood is up and that the ignition is **OFF**.
- Hold the hood pin-switch down for 4 seconds.
- Release the pin-switch. The parking lights will come on.
- While the parking lights are on, immediately push and release the pin-switch again.

The parking lights will stay on for up to 20 seconds.

2. Press and hold the brake pedal, then simultaneously press the **UNLOCK** and **START/STOP** buttons on the transmitter – **the horn will honk 5 times**.
3. Release the brake pedal.
4. To change the timing:
   a. To increase the horn pulse by 3 ms, press the **LOCK** button.
   b. To decrease the pulse by 3 ms, press the **UNLOCK** button.
   c. To increase the pulse by 10 ms, press the **START/STOP** button.
   d. To decrease the pulse by 10 ms, press the **TRUNK** button.
5. To save the new settings: press **LOCK** and **UNLOCK**. If 3 chirps are returned the new settings have been saved.

Adjusting chirp duration

Otherwise close the hood to cancel the changes.

For each timing change, the horn will chirp with the new settings, except in the following cases:

- When the lower limit of 5 ms is reached, there will be a 1/4-sec. chirp.
- When the upper limit of 200 ms is reached, there will be a 3/4-sec. chirp.

A system reset will set the module back to the default values: 30 ms.

Testing

Before putting back the vehicle together, it is recommended to check that the system operates properly. The following testing procedures should be used to verify proper installation and operation of the system. Before testing, make sure that all connections are soldered and that the unit is plugged in.

- **Remote-start the engine and listen for starter drag.** If the starter cranks for too long, carry out another tach programming procedure.
- **Hood switch shutdown.** with the vehicle running under the module, open the hood; the vehicle should shut down. If it does not shut down, check the hood pin-switch and its connector.
- **Brake shutdown circuit.** With the vehicle running under the module, press and release the brake pedal. The engine should shut down immediately. If the engine continues to run, check the brake switch connection.
- **OEM alarm control.** Make sure the module is able to arm and disarm the OEM alarm (if applicable).
- **Door locks and trunk testing.** Make sure each of these options respond to the transmitter (if installed).
- **Starter kill option.** Sit inside the vehicle with all doors closed. Arm the vehicle, then try to start the Engine with the key. They engine should not start. If the engine starts, rewire the starter kill to reach proper operation.
- **Valet mode.** Make sure the module is able to properly enter and exit valet mode. When setting the module into valet mode, pressing the **LOCK** button will lock the doors without activating the starter kill. (Refer to the user guide for further information on valet mode.)
- **Idle mode.** Make sure the vehicle properly enters and exits idle mode.

Most comebacks are the result of misunderstandings about how a product works or performs. Take the time to properly explain all functions and features to the customers before they leave the premises. Doing this will save time and money.

Closing Up

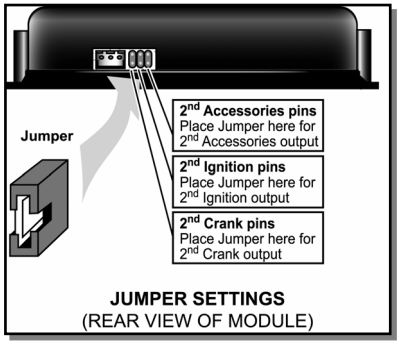
Use tie-wraps or screws to properly secure the module and keep the wiring away from any moving parts such as the parking brakes or steering column shafts. Mount all switches in good and accessible locations where they do not risk getting kicked or hit accidentally. Most comebacks are the result of misunderstandings about how a product works or performs. Take the time to properly explain all functions and features to the customers before they leave the premises. Doing this will save time and money. Always make all your connections before plugging in the module, and be sure to test all functions properly before closing up the installation. Make sure the warning label is applied on a visible place under the hood.

Supplementary Information

Fifth Relay Output (2nd IGN, ACC or CRANK)

This series of modules is equipped with an on-board high-current programmable 5th relay that can be used to power a second ignition, accessory or crank wire.

The unit uses 3 sets of pins; each set corresponds to a specific function of the output. In order to activate one of the three possible functions, you must place the jumper (supplied) on one of the three sets of pins and connect the 14 AWG wire to the second **IGN.** / **ACC.** / **CRANK** wire of the vehicle.



Caution!
Only one set of pins can be used at one time. Using more than one jumper may result in serious damage to the vehicle.
The relay output rating on this unit is 25 A at most. Defective OEM solenoid switches can sometimes draw up to 50 or 60 A, causing the 30 A fuse to blow. Always verify your circuit with an appropriate measuring device.

Ignition-controlled Door Locks

This feature will **LOCK** all the doors of the vehicle when the brake pedal is pressed while the ignition key is in the **IGNITION ON (RUN)** position. The unit will **UNLOCK** all doors when the ignition key is turned back to the **OFF** position. If ignition lock only is selected, the system will only **LOCK** all doors when the brake pedal is pressed while the ignition key is in the **IGNITION ON (RUN)** position. If option ignition unlock only is selected, the system will **UNLOCK** all doors when the key is turned to the **OFF** position (provided that the ignition key was in the **IGNITION ON (RUN)** position and that the brake pedal was pressed at least once).

Secure Lock

This feature allows the module to control certain OEM factory alarm systems without requiring the use of other wires for disarming the OEM alarm. (Namely, this feature is designed for OEM systems which use the factory lock wire to arm the alarm and the unlock wire to disarm it.)

Standard Secure Lock

If this option is selected, upon receiving a remote **START** signal, secure lock will unlock the doors (disarming the factory alarm); 1/2 sec. after remote start secure lock will re-lock the doors. 4 seconds after shutdown, secure lock will re-lock all doors (arming the system once again). **Please note** that most OEM systems will **NOT** rearm the alarm while the engine is running, but will still lock the doors.

Smart Secure Lock

If the vehicle is initially locked, upon remote start the module will trigger an unlock pulse and a disarm pulse before the engine is started. The module will lock again when the engine is running, and lock once again 4 seconds after shutdown.
If the vehicle is initially unlocked, upon remote start the module will start the engine and arm the starter kill, but the doors will not be locked or unlocked at any moment of the sequence.

Lock Pulse Duration

The duration of the lock and unlock pulses can be configured as follows:

- (Default) 7/10-sec. lock and 7/10-sec. unlock pulses
- 4-sec. lock/unlock pulses to control vacuum door lock systems
- A single 7/10-sec. lock pulse and two 1/4-sec. unlock pulses for double-pulse disarm/unlock systems.
- 1/10-sec. lock and 1/10-sec. unlock pulses

Priority Door

This feature allows to unlock the driver's door by pressing **UNLOCK** once and to unlock all other doors by pressing **UNLOCK** a second time. In order to accomplish this, you must connect the module's unlock wire to the driver's door accordingly (i.e.: whatever mechanism that will allow only the driver's door to unlock when the module's unlock wire is pulsed). The module's "priority door access" AUX wire must then connect to the wire in the vehicle that will unlock all doors. Program the AUX for priority door access accordingly.

Run Time

Use this function to configure the length of time the engine will be left running under remote control. The module will allow the engine to run for either **4, 15 or 25** min. in gas mode and **9, 20 or 30** min. in diesel mode. Standard default run time is 15 minutes in gas mode and 20 minutes in diesel mode.

Starter Kill (Installation)

The module is equipped with a selectable passive or active-arming starter kill circuit that will prevent the vehicle from being started with the ignition key when the module is armed. The starter kill wire will provide a constant 500-mA. negative output when the system is armed (locked by remote control) and can be connected to an external starter or ignition interrupt relay (see diagram below). The starter kill circuit can be set to arm in either passive mode or active mode.

Caution!!!
When installing the starter kill, it is extremely important that pin 86 be wired to ignition: do not jump it to pin 30 (damage to the vehicle could result).

Note: Installation of the starter kill system requires an external relay. **(Not included!)**

Passive or Active Arming

The module can be set to:

- **Active arming**: the starter kill will **not** arm automatically. Press the **LOCK** button to arm and the **UNLOCK** button to disarm it.
- **Passive arming:** the starter kill will arm automatically if it is not armed by remote within a 60-sec. delay. Press **UNLOCK** to disarm.
- **Passive arming** with 3-minute timeout: the starter kill will arm automatically after 3 minutes.

Flashing LED

There are three options available regarding the flashing LED:

a) The LED flashes once the starter kill is activated (passive or active arming) and will turn itself off once the user turns the key to the **IGNITION ON** position.
b) The LED is totally disabled and will not flash.
c) The LED will flash once the starter kill is activated but requires pressing the **UNLOCK** button to turn itself off. Failure to press the **UNLOCK** button will make the LED flash even if the key is in the **IGNITION ON** position.

Resetting the Module

The module is equipped with a reset function that allows the installer to erase all transmitter codes from memory and return all the programming options to the factory default values.

Resetting the module is not a required process. Most of the time, you can avoid resetting by fixing the issue directly at the root of the cause.

1. **Flash the hood pin switch (see page 9)**
   – Once inside programming mode, you have 10 seconds to complete the next step.
2. Press and release the break pedal 6 times (within 10 seconds from entering programming mode).
3. The **parking lights will flash 8 times** to confirm resetting.

Resetting without a valet button

On some vehicles (such as BMW and certain Volkswagen vehicles), resetting will not work if the brake pedal is pressed while the ignition key is **not** in the **IGNITION ON (RUN)** position: you will need therefore to hot-wire the brake pedal by manually jumping 12 V with a fused test lead at the brake pedal switch.

1. **Flash the hood pin switch (see page 9)**
   – Once inside programming mode, you have 10 seconds to complete the next step.
2. Press and release the valet button 6 times or more until the parking lights start to flash.
3. The **parking lights will flash 8 times** to confirm resetting.

Resetting with the valet button

Events Logging

With this feature, the module will play back the last 4 start failure events codes via the parking lights or L.E.D.

Events playback

Ensure that the hood is up, that the vehicle is not in valet mode and that the ignition is **OFF**.

- Hold down the hood pin-switch for 4 seconds.
- Release the pin-switch. **The parking lights will come on.**
- While the parking lights are on, immediately push the pin-switch 3 more times.

The parking lights and L.E.D. will flash the five events stored in memory.

Events playback

The first four playback codes are **start failure events**. There is a pause after each event code is played back.

The system will play back the most recent event first, then the second one, and so on. If there is no event at all to report, the parking lights will give one long flash.

Start Failure Codes through the Parking Lights

1 x = No Start
3 x = Hardware Reset
4 x = Brakes
5 x = No Tach Cut-off
6 x = Hood
7 x = Engine running, no ignition detected, or tach before start

Note: "x" stands for one flash of the parking lights

Diagnostics – Parking Light Flash Table

Flashes	Description
1	• Doors locked, starter kill armed. • End of run time. • **TRUNK** button pressed • Start signal received by the module. • Cold weather mode cancelled. • Cannot start after maximum number of attempts is reached.
2	• Doors unlocked, starter kill disarmed. • Run time cancelled. • Remote start attempt cancelled by remote. • Exiting remote valet • Exiting ignition valet
3	• Entering cold weather mode. • Entering extended run time. • Entering remote valet • Entering ignition valet
4	• +12 V where detected on the brake line and cranking was cancelled. • Entering tach-programming mode
5	• New transmitter programmed. • Tach programmed.
6	• A remote start was attempted while a tach or a vacuum signal was detected before cranking.
8	• Unit reset: occurs when the unit is reset to the factory defaults.
10	• The hood switch line went to ground during cranking or run time.
1 – pause – 2	• There was an attempt to start the vehicle while the module was in valet mode.
ON solid	• Cold weather mode: the brake pedal is being held down.
2 – pause – 2	• There was an attempt to start the vehicle while the module was in home valet mode.
ON 2 sec.	• The hood is up and the hood switch line went to ground. This is step one of the programming centre procedure.
ON 3 sec.	• First press of the **START** button under safe start.
ON 4 sec.	• Locking or unlocking a door (with door pulses configured to 4 sec.)
ON 25 sec.	• The hood pin-switch has been pressed twice: the unit went into step 1 of the programming centre procedure, and no transmitter activity was detected for 20 seconds. • **Or** the unit went into step 1 of the transmitter programming procedure and no activity was detected for a few seconds. The unit has exited the transmitter programming procedure.
Irregular	• If the unit gives irregular signals (1 to 10 flashes followed by a pause, followed by further flashes), the system is playing back start failure codes. This occurs when the hood pin-switch is pressed three times
Constant flashes up to 30 sec.	• Panic mode is triggered.

Programming Options

MODE 1 * INDICATES DEFAULT SETTING

FUNCTION 1 – Ignition-controlled door locks

OPTION 1*	Ignition lock DISABLED
OPTION 2	Ignition lock ENABLED
OPTION 3	Ignition unlock ONLY
OPTION 4	Ignition lock ONLY

FUNCTION 2 – Secure lock

OPTION 1*	Secure lock DISABLED (1-sec. disarm pulse)
OPTION 2	Smart secure lock ENABLED in smart mode
OPTION 3	Secure lock DISABLED (1/2-sec. disarm pulse)
OPTION 4	Standard secure lock ENABLED in standard mode
OPTION 5	Standard secure lock ENABLED (no rearm pulse when ignition is ON)

FUNCTION 3 – Passive or active arming

OPTION 1*	PASSIVE arming (60 sec.)
OPTION 2	ACTIVE arming
OPTION 3	PASSIVE arming (3 min.)

FUNCTION 4 – Door lock pulse timing

OPTION 1*	7/10-sec. lock/unlock pulses
OPTION 2	4-sec. lock/unlock pulses
OPTION 3	7/10-sec. lock pulse and two 1/4-sec. unlock pulses
OPTION 4	1/10-sec. lock/unlock pulses

FUNCTION 5 – LED flashing

OPTION 1*	ENABLED (without starter kill → will flash only when ignition is OFF)
OPTION 2	DISABLED
OPTION 3	ENABLED (with starter kill → will flash when the starter kill engages. This option should be selected ONLY if the starter kill is installed.)

MODE 2 * INDICATES DEFAULT SETTING

FUNCTION 1 – Safe start.

OPTION 1	safe start ENABLED
OPTION 2*	safe start DISABLED
OPTION 3	"Swap Start" – enhanced safe start mode with extended safety: To start the engine: press the SHIFT and LOCK buttons simultaneously. To trigger AUX 2: press the START/STOP button

FUNCTION 2 – Engine Run Time

OPTION 1	run time = 4 minutes in GAS mode / 9 minutes DIESEL mode
OPTION 2*	run time = 15 minutes in GAS mode / 20 minutes DIESEL mode
OPTION 3	run time = 25 minutes in GAS mode / 30 minutes DIESEL mode

FUNCTION 3 – Idle/Turbo Mode

OPTION 1	Idle/turbo mode DISABLED
OPTION 2*	Idle/turbo mode ENABLED
OPTION 3	Idle/turbo mode DISABLED

FUNCTION 4 – Engine Type and Cold Weather Mode

OPTION 1	Diesel mode with 20-minute run time in cold weather mode (30-sec delay)
OPTION 2*	Gas mode with 4-minute run time in cold weather mode (1-sec delay)
OPTION 3	Diesel mode with 9-minute run time in cold weather mode (7-sec delay)
OPTION 4	Diesel mode with 9-minute run time in cold weather mode (15 sec delay)

FUNCTION 5 – Ignition Valet

OPTION 1	ignition valet DISABLED
OPTION 2*	ignition valet ENABLED
OPTION 3	ignition valet ENABLED

MODE 3 * INDICATES DEFAULT SETTING

FUNCTION 1 – Home Valet TM

OPTION 1	Home valet ENABLED
OPTION 2*	Home valet DISABLED
OPTION 3	Home valet DISABLED

FUNCTION 2 – AUX 3 / Zone 3 Programming

OPTION 1	1-sec. output when TRUNK button is pressed for 3 sec. with ignition OFF or under remote run.
OPTION 2*	Constant output while the TRUNK button is pressed.
OPTION 3	Disarm/rearm pulse with TRUNK

FUNCTION 3 – AUX 2 Programming

OPTION 1	Constant output while the SHIFT and LOCK buttons are pressed. In safe start mode: activate AUX 2 by pressing the START/STOP button.
OPTION 2*	Toggle ON/OFF (with 30-second timeout)
OPTION 3	4-minute toggle (only when running under remote start)
OPTION 4	Priority door access

FUNCTION 4 – AUX 1 Programming

OPTION 1	Horn confirmation upon the 2nd press of the LOCK button.
OPTION 2*	Priority door access
OPTION 3	Horn confirmation upon the 1st press of the LOCK button.

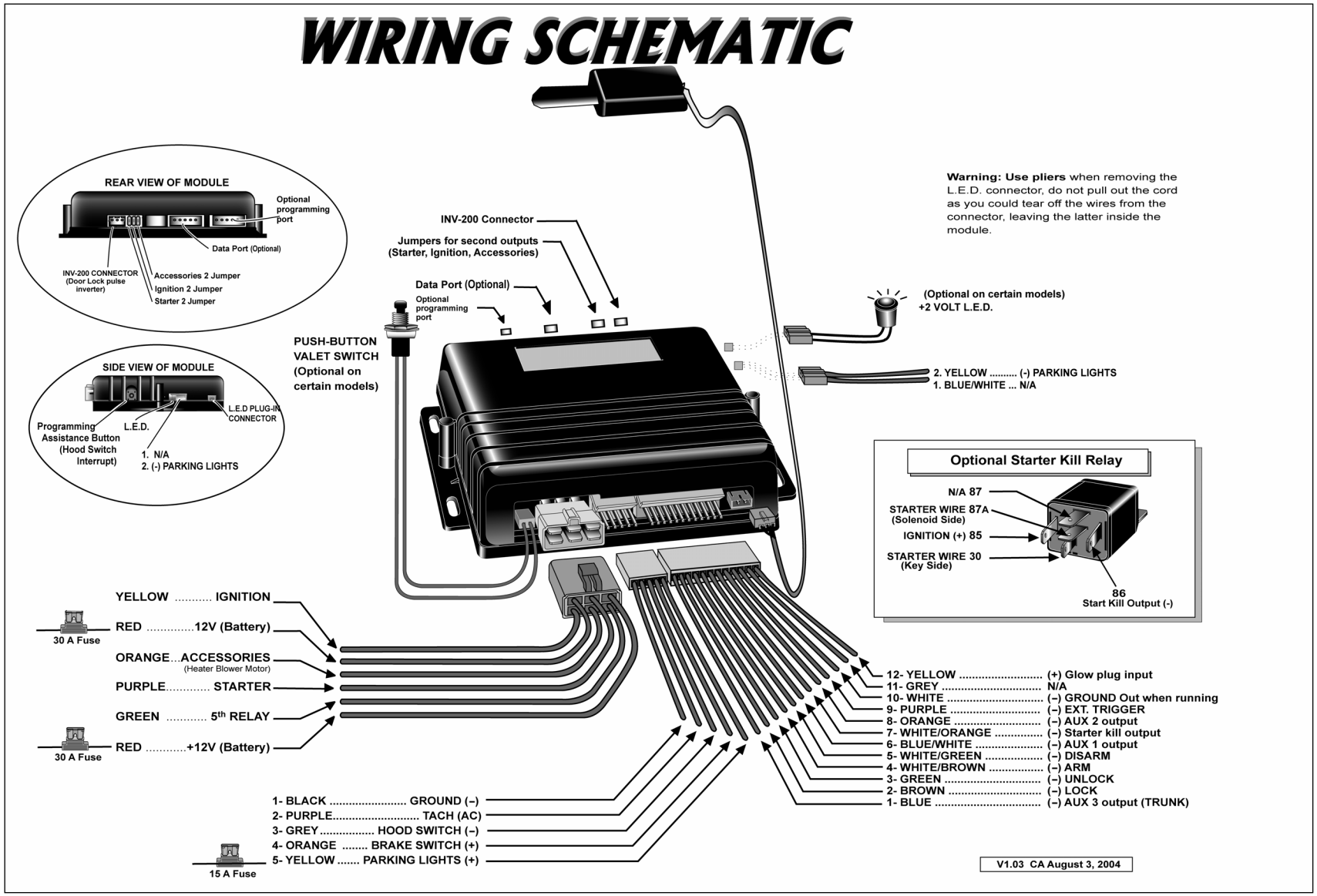
FUNCTION 5 – External Trigger

OPTION 1	Zone 3 rearm (trunk pin: a disarm pulse is sent before the trunk opens, the vehicle rearms 4 seconds after the trunk is closed).
OPTION 2*	Engine start/stop
OPTION 3	Key sense
OPTION 4	Dome light smart ignition lock

MODE 4 * INDICATES DEFAULT SETTING

FUNCTION 1 – Multi-Level Features

OPTION 1	Multi-car Features, Basic Features, Customized Features
OPTION 2*	Basic Features, Multi-car Features, Customized Features
OPTION 3	Customized Features, Multi-car Features, Basic Features
OPTION4	Basic Features, Customized Features, Multi-car Features


WIRING SCHEMATIC
REAR VIEW OF MODULE
Optional programming port
Data Port (Optional)
INV-200 CONNECTOR (Door Lock pulse inverter)
Accessories 2 Jumper
Ignition 2 Jumper
Starter 2 Jumper
SIDE VIEW OF MODULE
Programming Assistance Button (Hood Switch Interrupt)
L.E.D.
L.E.D PLUG-IN CONNECTOR
1. N/A
2. (-) PARKING LIGHTS
INV-200 Connector
Jumpers for second outputs (Starter, Ignition, Accessories)
Data Port (Optional)
Optional programming port
PUSH-BUTTON VALET SWITCH (Optional on certain models)
Warning: Use pliers when removing the L.E.D. connector, do not pull out the cord as you could tear off the wires from the connector, leaving the latter inside the module.
(Optional on certain models)
+2 VOLT L.E.D.
2. YELLOW ..... (-) PARKING LIGHTS
1. BLUE/WHITE ... N/A
Optional Starter Kill Relay
N/A 87
STARTER WIRE 87A (Solenoid Side)
IGNITION (+) 85
STARTER WIRE 30 (Key Side)
86
Start Kill Output (-)
YELLOW ..... IGNITION
RED .....12V (Battery)
30 A Fuse
ORANGE...ACCESSORIES
(Heater Blower Motor)
PURPLE..... STARTER
GREEN ..... 5th RELAY
RED .....+12V (Battery)
30 A Fuse
1- BLACK ..... GROUND (–)
2- PURPLE..... TACH (AC)
3- GREY..... HOOD SWITCH (–)
4- ORANGE ..... BRAKE SWITCH (+)
5- YELLOW ..... PARKING LIGHTS (+)
15 A Fuse
12- YELLOW ..... (+) Glow plug input
11- GREY ..... N/A
10- WHITE ..... (–) GROUND Out when running
9- PURPLE ..... (–) EXT. TRIGGER
8- ORANGE ..... (–) AUX 2 output
7- WHITE/ORANGE ..... (–) Starter kill output
6- BLUE/WHITE ..... (–) AUX 1 output
5- WHITE/GREEN ..... (–) DISARM
4- WHITE/BROWN ..... (–) ARM
3- GREEN ..... (–) UNLOCK
2- BROWN ..... (–) LOCK
1- BLUE ..... (–) AUX 3 output (TRUNK)
V1.03 CA August 3, 2004